

### **REMARKS**

By this Amendment many of the claims were amended to more particularly point out and distinctly claim the subject invention and to place the claims in better form for allowance. The addition of "new matter" has been scrupulously avoided. Claims 1-52 remain pending in this application.

**1. Response to Anticipation Rejection based upon Hollander**

In paragraphs 1 and 2 on pages 2-4 of the Office Action, the Patent Office rejected claims 36-40, 44, 51 and 52 under 35 USC 102(b) as anticipated by U.S. Patent 5,823,678 of Hollander, et al. (herein "Hollander1"). However, the Applicant respectfully submits that these rejections are inappropriate and requests that they be reconsidered and withdrawn.

The Applicant's undersigned Agent typically refers to the MPEP for guidance when considering whether an anticipation rejection is appropriate. For instance, MPEP § 2131 defines the conditions under which an anticipation rejection is appropriate:

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference."  
*Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). "The identical invention must be shown in as complete detail as is contained in the ... claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). The elements must be arranged as required by the claim...

The Applicant submits that Hollander1 does not include "each and every element" of the invention recited in these claims, nor does Hollander1 show the invention "in as complete detail" as these claims.

With respect to claim 36, first, Hollander1 does not disclose a lens or any structure that provides the function of a lens as recited in claim 36. In the passage in the Action, the Patent

Office references the structures in Figure 1 of Hollander1 as anticipating the invention recited in claim 36. However, no lens is shown in Figure 1 of Hollander1. In fact, it is somewhat conspicuous in the Patent Office's citation of the structures in Figure 1 that allegedly anticipate the invention recited in claim 36 that all but one of the alleged structures are referenced by a reference number. That one structure is the applicant's claimed lens. Since a lens does not appear in Figure 1 of Hollander1 the Patent Office was unable to identify it with a reference number. Clearly no such lens is disclosed in Figure 1 of Hollander1. The Applicant submits that for this reason alone Hollander1 does not anticipate claim 36.

Second, Hollander1 does not disclose or suggest that the "marking" provided on the measuring surface provide any indication of the temperature detected by the IR detector. This aspect of the invention is most clearly described in the present specification in the passage from page 16, line 16 to page 17, line 8. According to one aspect of the invention, the marking on the surface provided by the light source can vary depending upon the temperature detected by the IR detector, for example, the direction of rotation of the marking or the frequency of the rotation of the marking indicating the absolute value of the temperature. Such indications of the temperature detected by the IR detector are in no way disclosed or suggested by Hollander1.

Thus, for these reasons the Applicant submits that Hollander1 does not anticipate the invention recited in claim 36 and respectfully requests that this rejection be reconsidered and withdrawn.

With respect to the rejections of dependent claims 37-40, the Applicant submits that these claims are not anticipated by Hollander1 for the same reasons that claim 36, from which they depend, is not anticipated. In addition, aspects of the dependent claims are not disclosed or suggested by Hollander1. For example, with respect to claim 37, Hollander1 does not disclose or suggest the use of "deviating means...adapted to deviate said beam path of said visible light," as recited in claim 37. Contrary to the claimed invention, light beam 14 is not deviated in any way in Figure 1 of Hollander1 and no structure is provided in Figure 1 to deviate light beam 14. The Applicant respectfully requests that these rejections be reconsidered and withdrawn.

With respect to claim 44, the Applicant submits that Hollander1 does not anticipate claim 44 for the same reason claim 36 is not anticipated by Hollander1: no lens is disclosed in Figure 1 of Hollander1. Moreover, Hollander1 also does not anticipate claim 44 since, not only does Hollander1 not disclose a lens in Figure 1, absent such a lens, Hollander1 cannot disclose a “lens being inclined versus said optical axis.” No lens, thus no inclined lens. The Patent Office cites the passage at 5:20-66 of Hollander1, but this passage includes no mention of a lens or any structure that performs the function of a lens. A reference to the “optics of the radiometer” is made at 5:43, but there is absolutely no mention of what these optics are or how they function. In the context in which the term “optics” is used in this passage, it is in no way suggested that the optics comprise an inclined lens as claimed. Further, Hollander1 neither discloses nor suggests that the reflected IR radiation in anyway be varied by the presence of a lens. The Applicant respectfully requests that this rejection of claim 44 as anticipated by Hollander1 be reconsidered and withdrawn.

With respect to claim 51, in addition to not disclosing the use of a lens (as discussed above), Hollander1 fails to disclose or teach “indicating with said marking at least one of a measured state and a change of temperature based upon said determined temperature” as recited in claim 51. The Patent Office cites 3:47-57 and 5:20-66 of Hollander1, but these passages teach nothing concerning indicating the measured state or the change of temperature by means of the marking. The Applicant respectfully requests that this rejection of claim 51 as anticipated by Hollander1 be reconsidered and withdrawn.

With respect to claim 52, again, as discussed above with respect to claim 44, Hollander1 does not teach or suggest the use of a lens or the use of an inclined lens of any kind. Moreover, Hollander1 does not reflect any visible light from the outer surface of a lens (which Hollander1 does not include) upon the surface being measured. This aspect of the invention is most clearly illustrated in Figure 5 of the present application where light from source 6 is reflected from the surface of inclined lens 51 to mark (that is, illuminate) the surface being investigated. Hollander1 discloses no such method. The Applicant respectfully requests that this rejection of claim 52 as anticipated by Hollander1 be reconsidered and withdrawn.

**2. Response to Anticipation Rejection based upon Meier**

In paragraph 3 on page 4 of the Office Action, the Patent Office rejected claims 28 and 29 under 35 USC 102(b) as anticipated by U.S. Patent 3,775,620 of Meier, et al. (herein "Meier"). However, the Applicant respectfully submits that these rejections are inappropriate and requests that they be reconsidered and withdrawn.

The Applicants submit that Meier does not include "each and every element" of the invention recited in these claims, nor does Meier show the invention "in as complete detail" as in these claims.

Frankly, the Meier device has nothing to do with the claimed invention. The device disclosed by Meier is not a sighting device as recited in claim 28 and illustrated in Figure 18 of the present application. As clearly stated in its title and described in its abstract, Meier is a "Radiation source simulation means" for an "advanced sensor evaluation and test apparatus." As shown most clearly in Figures 1 and 2 of Meier, the Meier device directs an unspecified radiation from source 34 to a sensor under test 60 via a series of mirrors. There is no radiometer or radiometer function in Meier, that is, no temperatures are being detected, and clearly no measuring surfaces are being illuminated or marked. Specifically, there is no visible light sources in Meier. Though source 34 is referred to as a "radiant energy source" in Meier, there is no teaching or suggestion that source 34 is a visible light source. The only specific radiation that appear in Meier is "black body radiation," that is, infrared, not visible. Moreover, no sector mirror is disclosed, taught, or suggested by Meier. Though the passages cited by the Patent Office refers to Figure 9 of Meier, the device shown in Figure 9 is not a sector mirrored but a sector perforated mask. Meier simply does not include "each and every element" of the invention recited in claim 28, nor does Meier show the invention "in as complete detail." The Applicant respectfully requests that these rejections of claim 28 and its dependent claim 29 as anticipated by Meier be reconsidered and withdrawn.

**3. Response to Anticipation Rejection based upon Needham**

In paragraph 4 on pages 4 and 5 of the Office Action, the Patent Office rejected claim 47 under 35 USC 102(b) as anticipated by U.S. Patent 4,466,748 of Needham, et al. (herein "Needham"). However, the Applicant respectfully submits that these rejections are inappropriate and requests that they be reconsidered and withdrawn.

The Applicants submit that Needham also does not include "each and every element" of the invention recited in these claims, nor does Needham show the invention "in as complete detail" as these claims.

The Applicant respectfully submits that Needham has nothing to teach concerning the invention recited in claim 47 or any other pending claim. As described throughout the present specification and in this response, the present invention is characterized by the illumination of the surface from which radiation is detected. Claim 47 recites one method of practicing one aspect of the invention in which a three light sources are use to illuminate, that is, "mark," the surface being examined by the radiometer. Contrary to the comments made by the Patent Office, Needham does not provide a surface "marking" or any structures that could be construed to provided such surface marking.

As described in Needham, Figure 1 of Needham discloses an apparatus that continuously varies the light input to detectors 5 to provide a continuous reference temperature for the temperature sensor. The center of figure 1 shows a rotatable mirror prism 1 impinged by an infrared light ray 8 emitted by the target. That is, the target is the surface under consideration or the surface corresponding to the claimed "measuring surface." The infrared beam is reflected by surface 3 to onto the detectors 5. On the left-hand side of Figure 1, light sources 12 reconstruct the image detected by detectors 5, via appropriate electronics, as visible light from light sources 12. The visible light is directed to observer 19. However, unlike the claimed invention, no visible light is directed to the target, that is, the measuring surface. Since Needham fails to disclose a method for "marking [a] measuring surface" with visible light, Needham cannot

anticipate the invention recited in claim 47. The Applicant respectfully requests that this rejection of claim 47 as anticipated by Needham be reconsidered and withdrawn.

**4. Response to Anticipation Rejection based upon Stein**

In paragraph 5 on page 5 of the Office Action, the Patent Office rejected claim 48 under 35 USC 102(b) as anticipated by U.S. Patent 4,4178,822 of Stein, et al. (herein "Stein"). However, the Applicant respectfully submits that this rejection is inappropriate and requests that it be reconsidered and withdrawn.

The Applicant submits that Stein also does not include "each and every element" of the invention recited in these claims, nor does Stein show the invention "in as complete detail" as these claims.

The aspect of the invention recited in claim 48 is most clearly illustrated in Figures 18 and 19 and describe in lines 16 + on page 17 of the present application. In Figure 18, laser 6 directs a light beam against sectorized mirror 181 to generate a pattern of dots as shown in Figure 19 about the periphery of the measuring surface. As described at lines 28-30 on page 17, laser 6 may be a laser 63 as shown in Figures 6-12 in which the direction of laser 63 may be controlled, for example, by piezo-electric actuators, to rotate the laser beam at a constant angular velocity, as indicated by the ellipse in Figure 18.

In contrast to the claimed invention, as described most succinctly under the heading "Summary of the Invention," Stein discloses "a unique radiometer capable of accurately determining the temperature of a radiant surface by independently measuring the surface's radiance and emissivity." In order achieve this end, as shown in Figure 1, Stein directs a laser light 1 onto the surface 4. However, the light beam introduced by laser 1 is not a visible light beam, as claimed, but a non-visible infrared light beam. As is well known, for example, see Nguyen, column 5, line 65, visible light has a wavelength of 0.4 to 0.7 microns. However, Stein's non-visible infrared beam has a much higher wavelength, for example, 10.9 microns (see 3:52), 1.3 microns, 2.1 microns, 2.3 microns, 3.6-4 microns and 8-13 microns or higher (see 3:

62-63) and 0.9  $\mu\text{m}$  (see 5:20). None of these radiation wavelengths are visible. Thus, though Stein directs a laser unto surface 4, the radiation emitted, contrary to the claimed invention, is not visible. Thus, for this reason alone Stein does not anticipate the invention recited in claim 48.

In addition, Stein fails to teach or suggest that the visible light beam be guided at a constant angular velocity, as claimed. Nowhere in Stein is it disclosed or suggested that the light beam proved by lasers 1, 30, or 42 be rotated as claimed. Again, Stein does not anticipate the invention recited in claim 48.

Further still, Stein does not change the direction of the light beam, as claimed. Though Stein includes a segmented mirror 22 in Figure 2, as described at 5:5-18 of Stein, mirror 22 is not impinged by the light from laser 1, but by the reference radiation from black body 20. That is, contrary to the present invention, light from laser 1 is not reflected from a sectored mirror. Again, Stein does not anticipate the invention recited in claim 48.

For all these reasons, the Applicant respectfully requests that this rejection of claim 48 as anticipated by Stein be reconsidered and withdrawn.

#### **5. Response to Obviousness Rejection based upon Hollander and Ogikubo**

In paragraphs 6 and 7 on pages 5 and 6 of the Office Action, the Patent Office rejected claims 1 and 7 under 35 USC 103(a) as obvious in view of the combined teachings of U.S. Patent 6,564,398 of Hollander, et al. (herein "Hollander2") and U.S. Patent 5,270,528 of Ogikubo, et al. (herein "Ogikubo"). However, the Applicant respectfully submits that these rejections are inappropriate and requests that they be reconsidered and withdrawn.

Again, the Applicant's undersigned agent typically refers to the MPEP for assistance in determining when an obviousness rejection is appropriate. Section 2143.10 of the MPEP provides the following guidelines concerning the appropriateness of combining the teachings of prior art references:

Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either explicitly or implicitly in the references themselves or in the knowledge generally available to one of ordinary skill in the art. “The test for an implicit showing is what the combined teachings, knowledge of one of ordinary skill in the art, and the nature of the problem to be solved as a whole would have suggested to those of ordinary skill in the art.” *In re Kotzab*, 217 F.3d 1365, 1370, 55 USPQ2d 1313, 1317 (Fed. Cir. 2000). See also *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992) [Emphasis added.]

The Applicant submits that neither Hollander2 nor Ogikubo provide any teaching, suggestion, or motivation to combine their teachings to produce the invention recited in claim 1. In addition, the Applicant submits that the nature of the problem to be solved “as a whole” by the present invention does not suggest that the teachings of Hollander2 and Ogikubo be combined.

As stated by the Patent Office, Hollander2 does not disclose the use of a piezoactuator, but relies on the teachings of Ogikubo to provide the teachings missing from Hollander2. As noted by the Patent Office, 2:35-40 of Ogikubo discloses the use of a “piezoelectric element” for use in “changing the optical distance” between “the light sensitive means and the optical means” (see 2:29-30 of Ogikubo). However, the Applicant submits that, contrary to the claimed invention, Ogikubo does not employ the piezoelectric element to control the direction of the light beam marking the measuring surface.

First, contrary to the present invention, Ogikubo does not illuminate any surfaces with a visible light sources. According to the Applicant’s reading of Ogikubo, the disclosed device is simply an enhancement of a conventional radiometer. No surfaces are illuminated for identification in Ogikubo as discussed throughout the present specification and throughout this response.



Second, since the Ogikubo apparatus fails to include any light sources that illuminate a “measuring surface” as claimed, Ogikubo inherently cannot teach the varying of a illuminating light beam by any means. The Ogikubo apparatus may use a piezoelectric element to vary the location of something, but this element does not vary the path of a light beam which a illuminates a measuring surface as in the invention recited in claim 1. Therefore, even if combined, the present invention does not ensue

The Ogikubo apparatus is most clearly illustrated in Figure 4 of Ogikubo. In this figure, the disclosed change for which the piezoelectric element is employed is indicated by the “ $\Delta h$ ” between position 13a and 13b of detection unit 13, for “changing the optical distance” between optic 12 and detection unit 13. This changing of the optical distance  $\Delta h$  has nothing whatsoever to do with the aspect of the present invention recited in claim 1 in which the direction of the surface illuminating beam is controlled by use of a piezoactuator. Thus, even if combined, the teachings of Hollander2 and Ogikubo do not yield the present invention. For instance, it is unclear to the Applicant how the teachings of Ogikubo can be combined with the teachings of Hollander2. For example, there are no infrared sensors shown in the apparatus of Hollander2 that have a distance to an optic that can or should be varied. Again, as noted previously with response to Hollander1, Hollander2 does not disclose any lenses for a sensor that could be considered an optic according to the disclosure of Ogikubo. Lacking this teaching, suggestion, or motivation to combine these references, the Applicant respectfully submits that claim 1 is not obvious in view of Hollander2 and Ogikubo.

With respect to claim 7, claim 7 is not obvious in view of Hollander2 and Ogikubo for the same reasons that claim 1 is not obvious. Moreover, contrary to the comments made by the Patent Office, the device to which the piezoactuator is mounted in Figure 6 of Ogikubo is not a light source, as claimed in claim 7, but a detection unit 13. Again, claim 7 is not obvious in view of Hollander2 and Ogikubo.

**6. Response to Obviousness Rejection based upon Hollander, Ogikubo, and Morgan**

In paragraph 8 on page 6 of the Office Action, the Patent Office rejected claim 2 under 35 USC 103(a) as obvious in view of the combined teachings of Hollander2, Ogikubo, and U.S. Published Patent Application 2005/0174473 of Morgan, et al. (herein "Morgan"). The Applicant respectfully submits that this rejection is also inappropriate and requests that it be reconsidered and withdrawn.

Not only does Morgan not provide the teachings missing from Hollander2 and Ogikubo, Morgan does not disclose a bending type actuator as recited in claim 2. First, as recited in Morgan's title and abstract, the invention disclosed in Morgan is for photography or cinematography. Morgan is not related to the radiometer or pyrometer art. Second, even though, paragraphs [0217] and [0218] disclose a wide range of actuators, none of these sensors are piezo-bending type actuators. The Applicant respectfully submits that claim 2 is not obvious in view of Hollander2, Ogikubo, and Morgan and requests that this rejection also be reconsidered and withdrawn.

**7. Response to Miscellaneous Obviousness Rejections based upon Hollander, Ogikubo, and Others**

In paragraphs 9 and 10 on pages 6-8 of the Office Action, the Patent Office rejected dependent claims 3, 4, 8, and 9 under 35 USC 103(a) as obvious in view of the combined teachings of Hollander2, Ogikubo, Stein, and U.S. Patent 6,704,607 of Stone, et al. (herein "Stone1"). However, the Applicant submits that these claims are not obvious in view of these references for the same reasons that claim 1, from which they depend, is not obvious. The Applicant respectfully submits that these rejections be reconsidered and withdrawn.

**8. Response to Obviousness Rejection based upon Hollander and Stone**

In paragraph 11 on pages 9-11 of the Office Action, the Patent Office rejected claims 21, 24, and 26 under 35 USC 103(a) as obvious in view of the combined teachings of Hollander1

and U.S. Patent 5, 477,332 of Stone, et al. (herein "Stone2"). The Applicant respectfully submits that these rejections are also inappropriate and requests that they be reconsidered and withdrawn.

The Applicant submits that neither Hollander1 nor Stone2 provide any teaching, suggestion, or motivation to combine their teachings to produce the invention recited in claim 21. In addition, the Applicant submits that the nature of the problem to be solved "as a whole" by the present invention does not suggest that the teachings of Hollander1 and Stone2 be combined.

With respect to claim 21, first, the Patent Office has misconstrued Hollander1. Hollander1 does not disclose, teach, or suggest that its device "generate a plurality of bright points at an edge of said measuring surface" as recited in claim 21. The Patent Office cites the passage at 5:20-40 of Hollander1 for support for this teaching, but this passage provides no evidence of Hollander1 providing a plurality of spots. The Patent Office may have misinterpreted what is shown in Figure 2B of Hollander1 as a plurality of spots, but that is not what is shown in Figure 2B. As described in the passage bridging columns 6 and 7 of Hollander1, Figure 2B illustrates the sequences of steps (E-1, E-2, etc.) of a single beam as it rotates about the energy zone E. During the disclosed process of Hollander1, "the laser beam [is] permitted to remain in each step for at least one hundredth of a second before moving to its next position." That is, in the Hollander1 process, a single light spot progresses about the periphery of zone E. Contrary to the invention recited in claim 21, a plurality of points or spots are not provided at any instant. There is not teaching or suggestion in Hollander1 to provide the claimed plurality of points.

Moreover, as confirmed by the Patent Office, Hollander1 is devoid of any teaching that three light sources can be used or that a control system can be used to control the energizing of the light sources. The Patent Office relies on Stone2 to provide these teachings.

However, the Applicant submits that Stone2 is not a temperature detecting radiometer and also does not provide the claimed plurality of points that are missing from Hollander1. First, Stone2 is not a temperature-sensing device. As described in its title and throughout its specification and claims, Stone2 is a "digital image system and method for determining surface

reflective and refractive characteristics of objects.” Though the abstract and specification includes the word “radiometer,” no temperatures are detected by the radiometer of Stone2; the word “temperature” does not appear in Stone2. As described in its Abstract, Stone2’s radiometer is

positioned to receive light from the object, producing image data relative to positions of the light pixels and a computer apparatus that, among other functions in the system, interprets the image data and determines at least the surface waviness, radius of curvature and cant angle of the surface. [Emphasis added.]

That is, Stone2 does not use its radiometer to detect temperature. For this reason alone, Stone2 is inappropriately combined with Hollander1.

For some reason, the Patent Office was compelled to provide a lengthy discourse on page 10 of the Action on the operation and function of Stone2, but this operation and function have nothing whatsoever to do with the temperature sensing and surface periphery illuminating function of the claimed invention.

As shown in Figures 1 and 2, the Stone2 apparatus includes a video camera 28 that receives radiation emitted by source array 12 that is reflected from the test object 26 (column 6, lines 49 to 51). A radiation source unit 20 produces and feeds electromagnetic radiation preferably to a set of fiber-optic cables 22, which terminate at a frame (or light panel) 16 as shown in Figures 1 and 2 thereby forming the individual light sources 14 and source array 12. In operation, the processor controller 34 sends a signal to the source control 15 to turn on the electromagnetic radiation source unit 20. The controller 34 signals the digitizer 30 to take a background or reference image of the test object 26 without any source lights turned on, essentially producing a quiescent interval, and, subsequently, signals the source control 15 to turn on one of the individual light sources 14 and the digitizer 30 to take an image of the test object. However, contrary to the invention recited in claim 21, the individual light sources 14 emit light radially and illuminate at least a portion of the test object 26, that is, no points of light are provided on object 26. Moreover, light sources 14 in no way function to illuminate the

periphery of object 26 (which would be detrimental to the device of Stone2, since surface features are desired.) Some of the light from test object 26 is reflected toward the video camera 28 (column 7, line 58 to column 8, line 3). Subsequently other images are taken with each one of the individual light sources 14 sequentially turned on (column 8 line 32 to 33) to provide images to determine the surface waviness, radius of curvature and cant angle of the surface 26. Again, no temperatures are sensed and no peripheries are illuminated with points.

Again, in contrast to the claimed invention, Stone2 is not a temperature sensing device and Stone2 fails to disclose that the light sources emit visible light beams that generate a plurality of bright points at an edge of the measuring surface. On the contrary, Stone2 teaches that each light source illuminates the whole measurement surface. This is most clearly shown in Figure 6 of Stone2 where an individual light from source array 12 is shown illuminating essentially the entire surface 26. This is, of course, consistent with the teachings of Stone2, which desires to detect surface features, not surface temperatures. The Applicant submits that Stone2 does not provide the plurality of points that was also missing from Hollander1. Thus, even if Hollander1 and Stone2 are combined, the present invention does not ensue. The Applicant therefore submits that claim 21 is not obvious in view of Hollander1 and Stone2.

With respect to the rejections of dependent claims 24, 26, and 27, the Applicant submits that these claims are not obvious in view of Hollander1 and Stone2 for the same reasons that claim 21, from which they depend, are not obvious. In addition, aspects of these dependent claims are not disclosed or suggested by Hollander1 and Stone2. For example, with respect to claim 24, contrary to the Patent Office's comments, Hollander1 provides no means for illuminating at least one of the light sources to indicate a measured state. For example, as described on page 23 of the specification, a measured state may include temperature within a temperature range or temperature exceeding a predetermined limit. The Applicant submits that Hollander1 discloses no such means, nor would such means be obvious in view of Hollander or Stone2. The Applicant respectfully requests that the rejection of claim 24 and the other rejections of the claims dependent upon claim 21 be reconsidered and withdrawn.

**9. Response to Obviousness Rejection based upon Hollander and Nguyen**

In paragraph 13 on pages 13 and 14 of the Office Action, the Patent Office rejected claims 41, 42, and 43 under 35 USC 103(a) as obvious in view of the combined teachings of Hollander2 and U.S. Patent 5,836,694 of Nguyen, et al. (herein "Nguyen"). The Applicant respectfully submits that these rejections are also inappropriate and requests that they be reconsidered and withdrawn.

Claims 41-43 are dependent upon claims 36 and 37, the rejections of which are discussed above in Section 1 of this response. The Applicant submits that claims 41-43 are patentable for the same reasons that claims 36 and 37 from which they depend are patentable. The Applicant requests that these rejections of claims 41-43 as obvious in view of Hollander2 and Nguyen be reconsidered and withdrawn.

**10. Response to Obviousness Rejection based upon Hollander and De Ment**

In paragraph 14 on pages 14 and 15 of the Office Action, the Patent Office rejected claims 12, 45, and 46 under 35 USC 103(a) as obvious in view of the combined teachings of Hollander1 and U.S. Patent 3,641,354 of De Ment, et al. (herein "De Ment"). The Applicant respectfully submits that these rejections are also inappropriate and requests that they be reconsidered and withdrawn.

With respect to claims 12 and 46, the Applicant submits that neither Hollander1 nor De Ment provide any teaching, suggestion, or motivation to combine their teachings to produce the invention recited in claims 12 and 46. In addition, the Applicant submits that the nature of the problem to be solved "as a whole" by the present invention does not suggest that the teachings of Hollander1 and De Ment be combined.

The aspect of the invention recited in claims 12 and 46 is most clearly illustrated in Figure 24 of the present application which shows coil 238 mounted to beam arm 231 and magnet 239 positioned to move coil 238 when a current is passed through coil 238. As noted by the

Patent Office, Hollander1 fails to teach this coil/magnet control of the direction of the marking light beam. The Patent Office relies on De Ment to provide this missing teaching.

The Applicant submits that De Ment does not provide the teaching missing from Hollander1; in fact, De Ment is so far afield of the present invention, the Applicant is hard pressed where to begin. Contrary to the statements made by the Patent Office, De Ment does not disclose a radiometer or any apparatus that performs the function of a radiometer. As described by its title, its abstract, and, most clearly, in the introductory lines of the specification in column 1, De Ment relates to “fluidic optics and fluidic optical systems for light modulation, sensing, and recording...” The only reference to radiometry in De Ment is in the one passage identified by the Patent Office in column 11, where “radiometers” are one of the many types of sensors that may be utilized in the disclosed fluid optic system. According to De Ment, a fluidic optic may convert a pressure generated, for example, by an electromagnetic actuator into a light signal which may be converted by a radiometer into an electrical signal, but no temperature sensing is practiced by De Ment. No temperatures are detected anywhere in De Ment, and clearly no measuring surfaces are illuminated or marked in any way by any visible light beam in De Ment. Clearly, De Ment does not provide any of the recognized teachings that are absent from Hollander1. For these reasons, this rejection of claims 12 and 46 are inappropriate and should be withdrawn.

Specifically, De Ment is silent about the construction of the actuator. In the passage in column 9 cited by the Patent Office, De Ment describes different ways to implement “pulse hydraulics,” which the Patent Office acknowledges. But, it is unclear how drivers of these “pulse hydraulics” (with specific application to the fluid optics of De Ment), have anything whatsoever to do with the present invention. Again, the Patent Office regurgitates at length what is disclosed by a reference, but makes no attempt to relate this disclosure to the claimed invention. Again, the Applicant respectfully submits that these rejections of claims 12 and 46 as obvious in view of Hollander1 and De Ment are inappropriate and should be withdrawn.

With respect to claim 45, again, the Patent Office relies on De Ment for the teachings missing from Hollander1 and, again, as discussed above, the Applicant submits that De Ment

fails to provide the missing teachings. As noted above, De Ment discloses a “fluidic optics and fluidic optical systems for light modulation, sensing, and recording...,” not a radiometer, as claimed by the Patent Office. Again, the Patent Office refers to the “pulse hydraulics” of De Ment and that one of type of driver for the “pulse hydraulics” may be a piezoactuator. But, again, this disclosure by De Ment concerning “fluid optics” and “fluid drivers” has nothing to teach one of skill in the art how to control the direction of a surface marking light beam. Again, the Applicant respectfully submits that this rejection of claim 45 as obvious in view of Hollander1 and De Ment is inappropriate and should be withdrawn.

**11. Response to Obviousness Rejection based upon Hollander1, De Ment, and Others**

In paragraphs 15 and 16 on pages 17-19 of the Office Action, the Patent Office rejected dependent claims 13, 14, and 18 under 35 USC 103(a) as obvious in view of the combined teachings of Hollander1, De Ment, Stone, and U.S. Patent 6,853, 452 of Laufer, et al. (herein “Laufer”). However, the Applicant submits that these claims are not obvious in view of these references for the same reasons that claim 12 (discussed above in Section 10), from which they depend, is not obvious. The Applicant respectfully submits that these rejections be reconsidered and withdrawn.

**12. Response to Obviousness Rejection based upon Needham and Salmon**

In paragraph 17 on pages 19 and 20 of the Office Action, the Patent Office rejected claims 33, 34, and 50 under 35 USC 103(a) as obvious in view of the combined teachings of Needham and U.S. Published Patent Application 2004/00798700 of Salmon, et al. (herein “Salmon”). The Applicant respectfully submits that these rejections are also inappropriate and requests that they be reconsidered and withdrawn.

The aspect of the invention recited in claims 33 and 50 is most clearly illustrated in Figure 25 of the present specification. As discussed above in Section 3, contrary to the statements made by the Patent Office earlier and now in paragraph 17, Needham does not provide a surface “marking” or any structures that could be construed to provide such surface



marking. For this reason alone, these rejections of claims 33 and 50 are inappropriate and should be withdrawn.

Salmon does not provide the teachings missing from Needham. First, though Salmon discloses a “radiometer,” the Salmon radiometer is not adapted to detect a temperature of a surface. As described in paragraphs 0001-0003, the Salmon radiometer is a device used to detect electromagnetic radiation which is sensitive to temperature variation across the device; Salmon is not a radiometer used for temperature detection. Moreover, the Salmon radiometer does not include the teachings missing from Needham. Specifically, Salmon does not provide any device that functions to “mark” a surface as claimed. Based upon these distinctions from the function of the present invention, the Applicant submits that the inventions recited in claims 33 and 50 are not obvious in view of Needham and Salmon.

In support of its rejection based upon Salmon, the Patent references paragraph 0249 in Salmon. However, the “receptacle” disclosed in this paragraph does not retain a light source as claimed. As critical examination of this paragraph clearly shows, Salmon’s receptacles are “capable of holding a source of hot or cold loads.” As described in preceding paragraphs 0247 and 0248, these “thermal loads” are not light sources as claimed, but refer to the thermal loads 99a and 99b of Figures 10a and 10b, for example, “liquid nitrogen,” used for calibrating the device of Salmon. Clearly, not only does the radiometer of Salmon not provide the teachings missing from Needham, but the receptacle of Salmon have nothing to do with Needham or the present invention. Again, the Applicant respectfully requests that these rejections of claim 33, its dependent claim 34, and claim 50 as obvious in view of Needham and Salmon be reconsidered and withdrawn.

### **13. Allowable Subject Matter**

In paragraph 18 on page 20 of the Office Action, the Patent Office deemed claims 30, 31, 32, and 49 allowed. The Applicant acknowledges with appreciation the allowance of these claims.

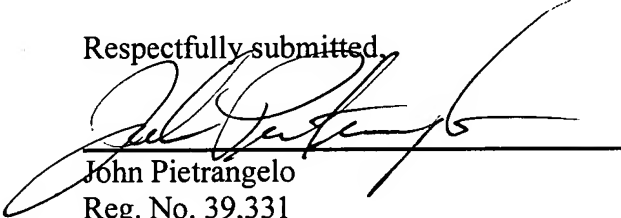
In paragraph 19 on page 22 of the Office Action, the Patent Office deemed claims 5, 6, 10, 11, 15, 16, 22, 23, 25, and 35 allowable if rewritten in independent form. The Applicant acknowledges with appreciation the recognition of the allowability of these claims, but as described above, the Applicant believes that the Applicant is entitled to broader protection than is provided by these claims.

**14. Conclusion**

The Applicant believes that the above Amendment and Remarks overcome the rejections of the subject Office Action and places the application in condition for allowance. An early and favorable action on the merits of the application is requested.

If a telephone conference would be of assistance in advancing prosecution of the subject application, the Applicant's undersigned Agent invites the Examiner to telephone him at the number provided.

Respectfully submitted,



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